Fig. 1 Transmitter

Fig. 2 Receiver


5

Fig. 3 Packet Streams

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p

450

IDT	B	B	P	SI	B	SP	B	. . .

440

T_{adv}

400

IDS N	IDS N+1	IDS N+2

410

IDS N-1	IDS N	IDS N+1

LOAD
ROBUST
DATA

t0   t4

420   GOP:

I	B	B	P	B	B	P	B	B	P	B	B	P	B	B

430

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

Fig. 4 GOP Streams

a)

ROBUST
MODE
VIDEO

230"

234

232

RESULTING
VIDEO
SIGNAL

NORMAL
MODE
VIDEO

CNTRL   231

E

b)

230"

DECODED
VIDEO

236

QUALITY
FILTER

238

SEL

RESULTING
VIDEO
SIGNAL

CNTRL

231

E
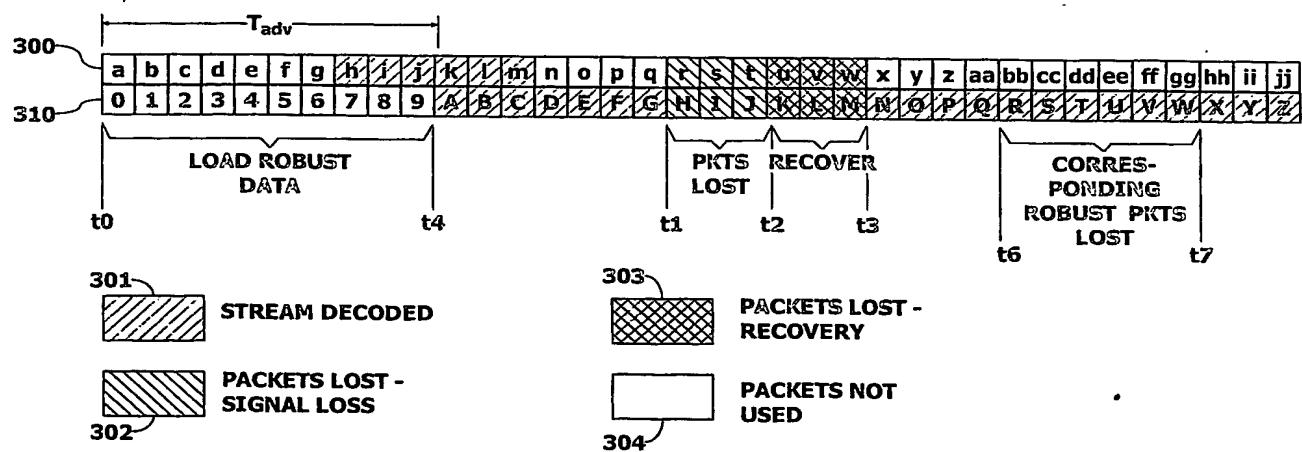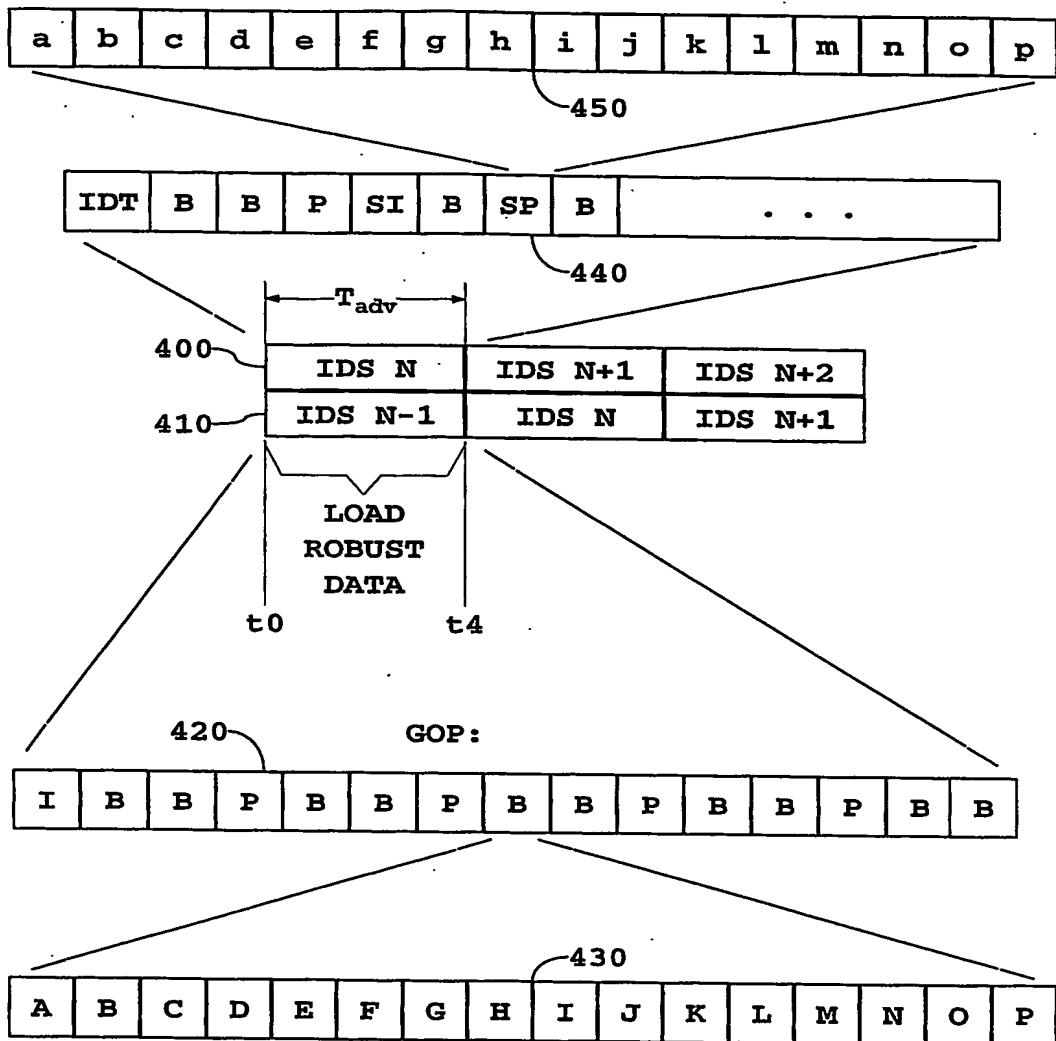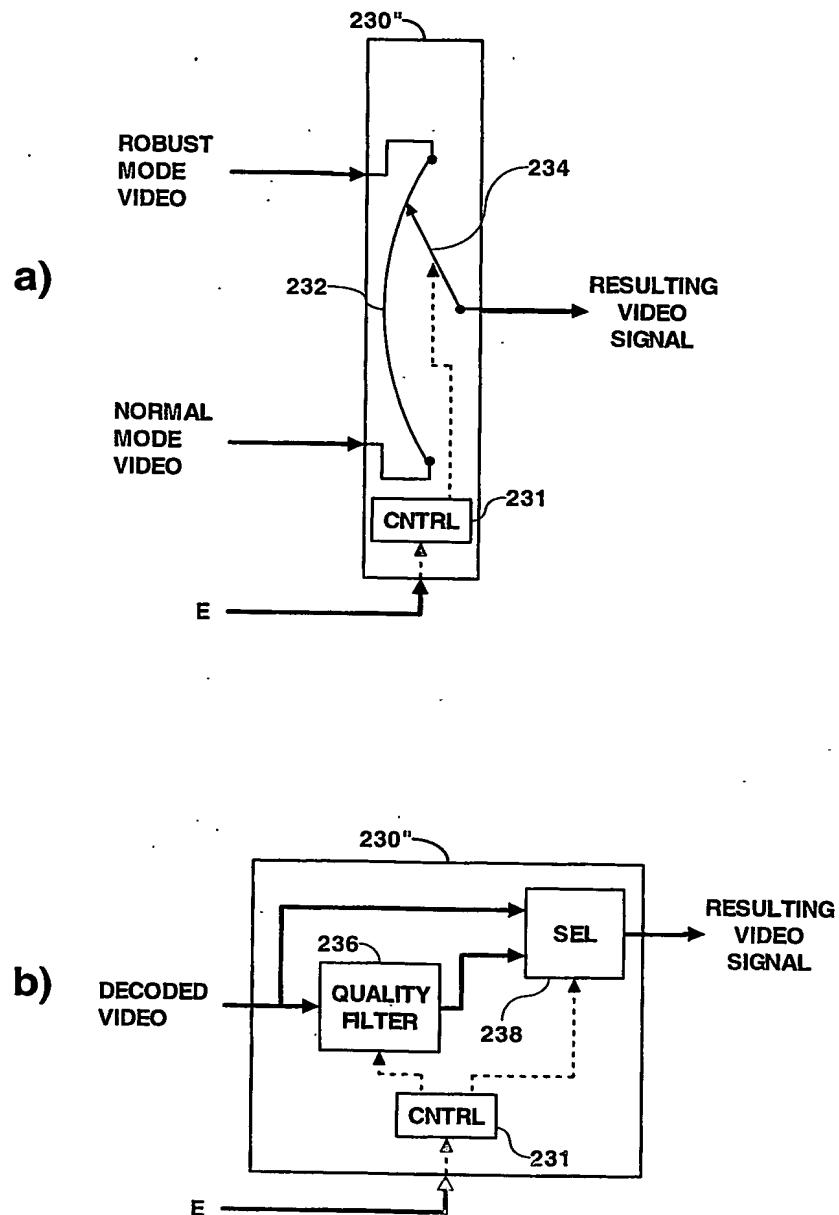
Fig. 5 Smoothing selector
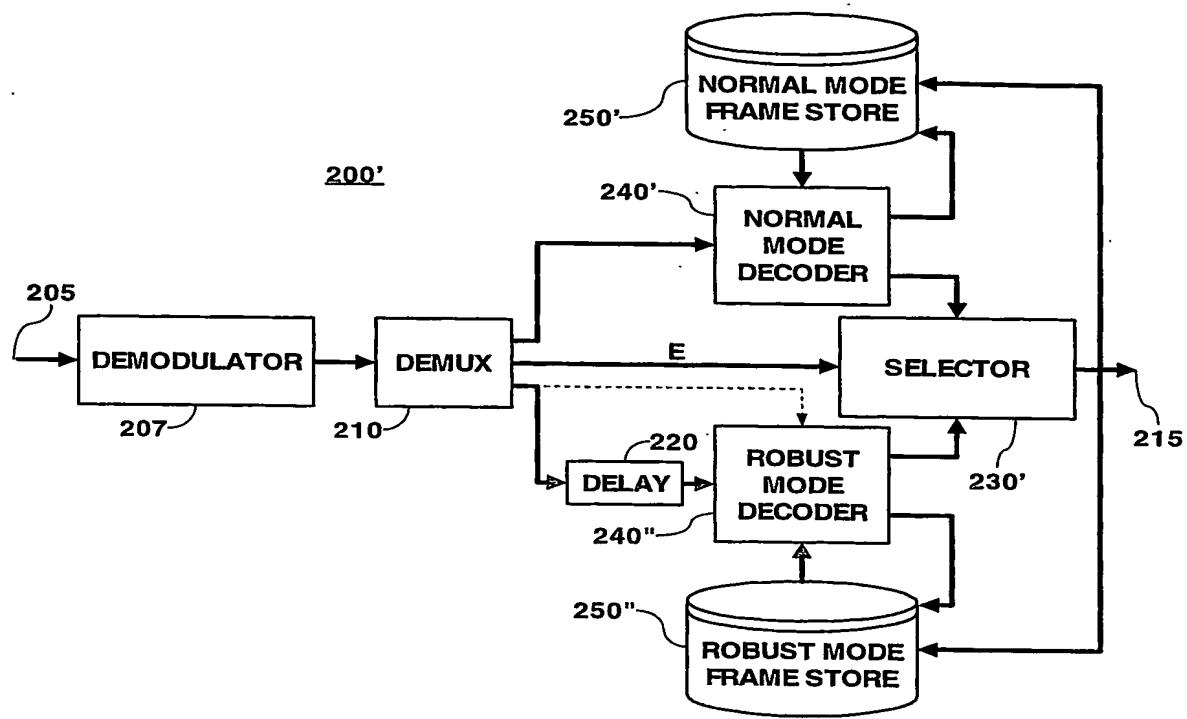
Fig. 6 Picture layer receiver

MPEG:

CODED	I	B	B	P	B	B	P	B	B	P	B	B	P	B	B	420
FRAMES	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	520

JVT:

SLICES

CODED	IDR							...								440
FRAMES	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	540

OUTPUT:

FRAMES	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	460
SOURCE	M	M	M	M	M	M	J	M	M	M	XX	M	M	J	M	560
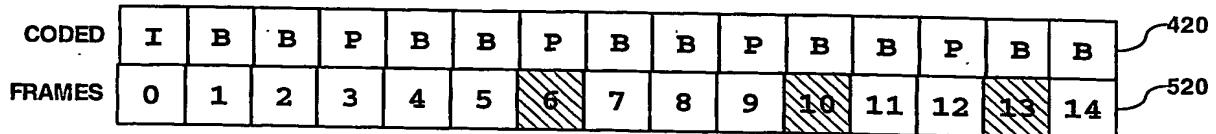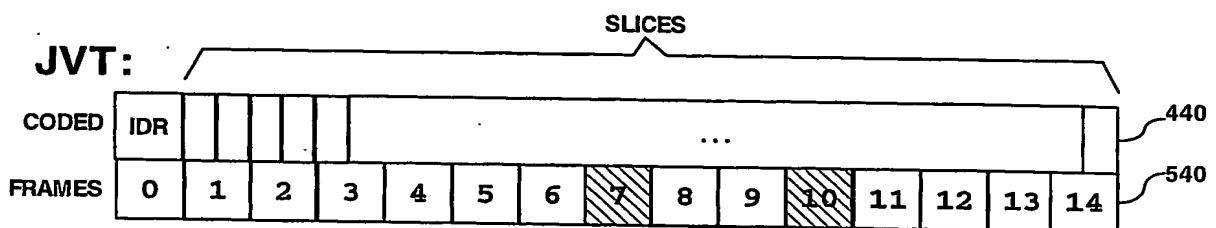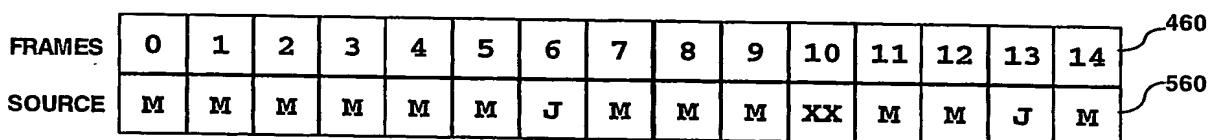
Fig. 7 Picture layer streams

|			
Number_of Robust_simulcast_channels	802	up to 256 channels supported	8 bit unit
For (i=0;i<number_of_robust_simulcast_channels;i++){			
Robust_Mode_PID	804	Identifies this channel in the TS	16 bit unit
Simulcast_data_type	806	0 = video 1 = audio 2 = data	2 bit unit
If(Simulcast_data_type_=_0){	812		
Robust_Mode_video_compression_format		0 = ATSC MPEG2 MP@HL 1 = JVT MP@level all others reserved_for_future_use	6 bit unit
Robust_Mode_video_frame_rate		Frame rate in frames per second	7 bit unit
Robust_Mode_video_frame_interlaced		If 0 then progressive, else interlaced	1 bit unit
Robust_Mode_video_frame_horz		Horizontal frame resolution	16 bit unit
Robust_Mode_vjdeo_frame_vert		Vertical frame resolution	16 bit unit
Robust_Mode_video_frame_bitrate		Video elementary stream bit rate in bps	32 bit unit
Eise	814		
Robust_Mode_audio_compression_format		0 ATSC AC-3 1 MP3pro all others reserved	6 bit unit
Robust_Mode_audio_bitrate		Audio elementary bit rate in bps	24 bit unit
Robust_Mode_audio_sampie_rate		Audio sample rate in Ksamples per sec	8 bit unit
Robust_Mode_audio_mode		0 5.1 channels 1 2 channel others	8 bit unit
}			
Normal_mode_simulcast_PID	808	PID of the normal channel which this robust mode channel duplicates.	16 bit unit
Robust_to_Normal_delay_offset	810	A 32 bit value in 90 KHZ clock cycles indicating the delay from robust channel to the normal channel	32 bit unit
Robust_Mode_High_Quality	816	IF 0 THEN the receiver should use the normal channel if available ELSE the broadcaster recommends use of the robust channel instead of the normal channel	1 bit unit
} // end for loop robust channels			

Fig. 8 PSIP/VCT Table

a)


b)
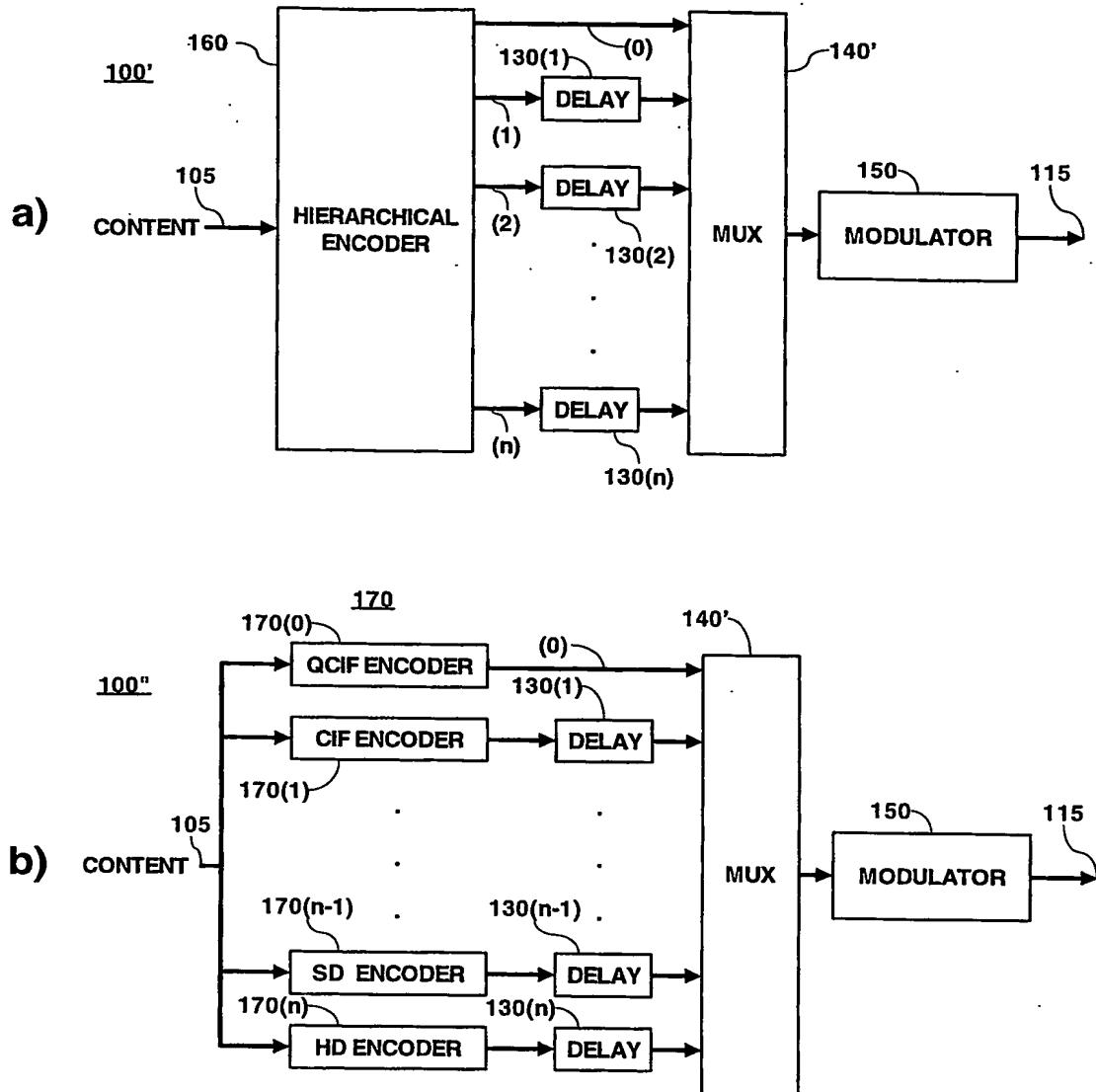
Fig. 9 Multiresolution transmitter

a)

b)

c)
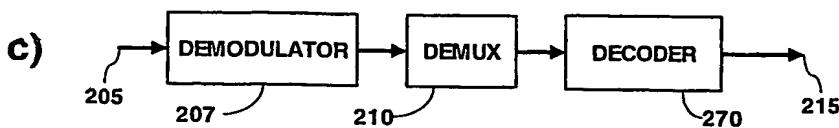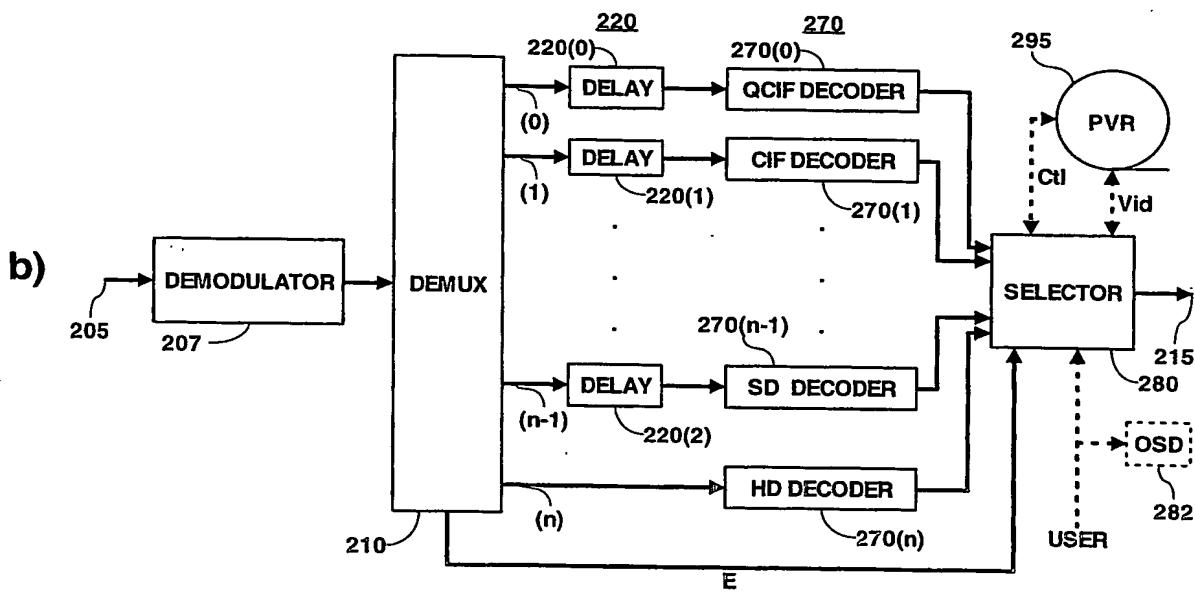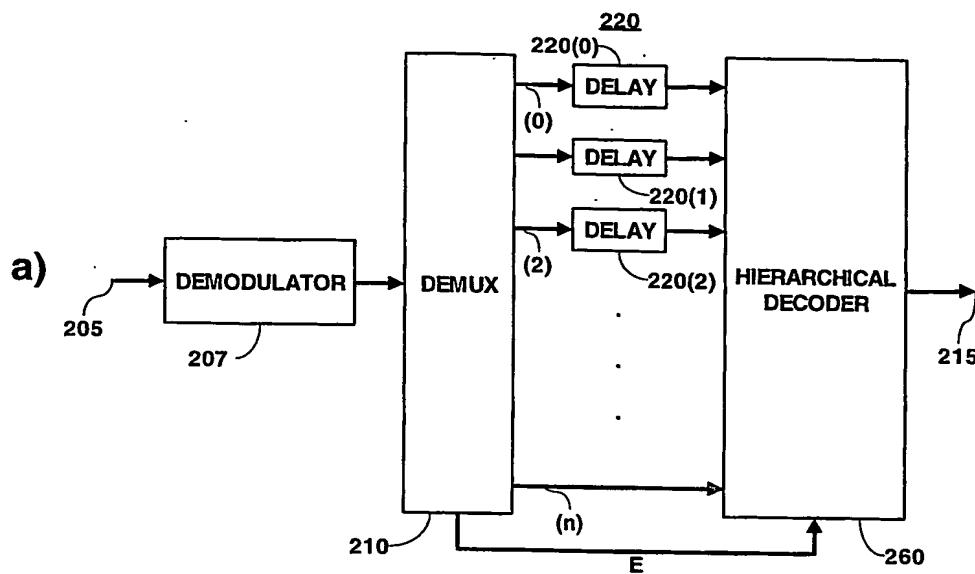
Fig. 10 Multiresolution receiver
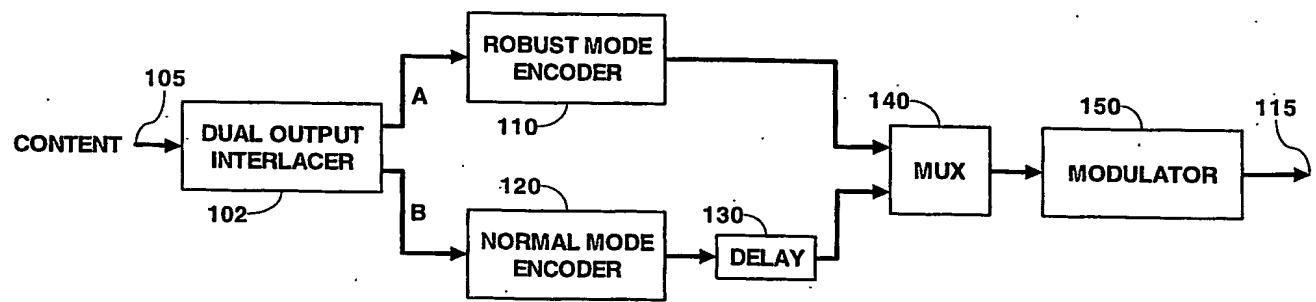
Fig. 11 Dual interlace transmitter
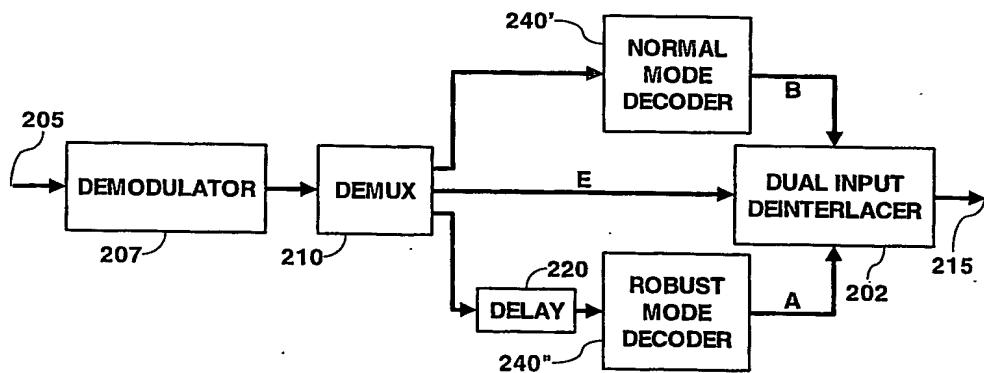
Fig. 12 Dual interlace receiver
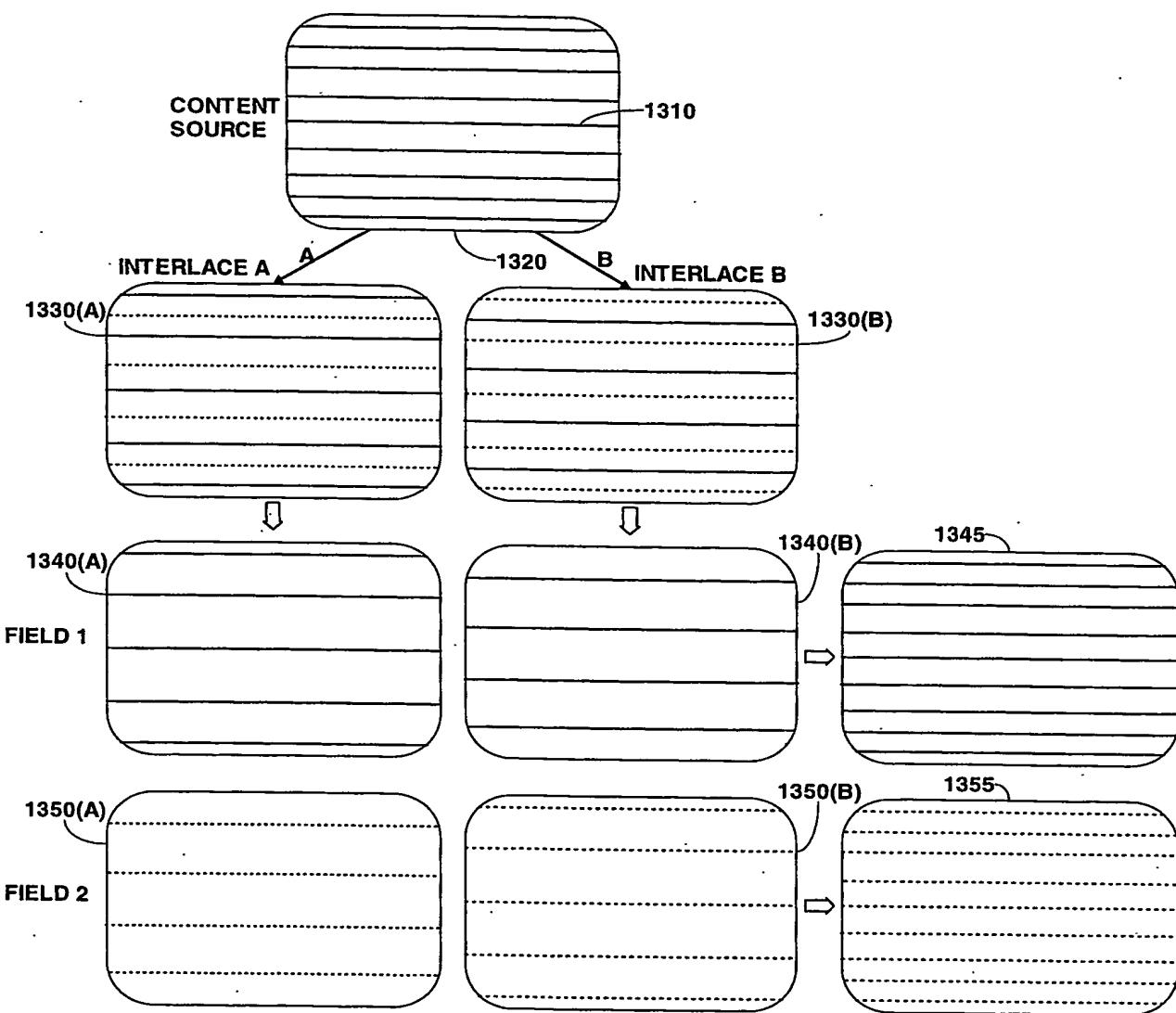
Fig. 13 Dual interlace scan images